

Sky News

Merrillville Community Planetarium
Clifford Pierce Middle School
199 East 70th Avenue
Merrillville, Indiana 46410
(219) 650-5486

Gregg L. Williams, Director

April, 2018

Volume 30, number 8

PERMAFROST ADDS TO CO2

Permafrost is a thick layer of frozen soil under the surface that remains frozen all year in cold environments of the polar and subpolar regions. Global warming is causing permafrost to thaw. In southern Alaska and Siberia, thawing is occurring. It will get much worse by the end of the 22nd century.

The permafrost soil is rich in organic materials that haven't yet decayed. As the soil thaws, the material will decay and release an abundance of carbon dioxide and methane into Earth's atmosphere. These are greenhouse gases. Carbon emissions may peak in 40 to 60 years, releasing 10 times as much carbon as all human-produced fossil fuel emissions in 2016! Since plants utilize the carbon dioxide, plant growth will increase and help remove some CO₂ from the atmosphere.

SEND YOUR NAME TO THE SUN

NASA's *Parker Solar Probe (PSP)* will be launched in the summer of 2018. Its mission is to go where no spacecraft has gone before. *PSP* will travel through the Sun's atmosphere and get closer to the solar surface than any spacecraft has ever gone.

PSP is about the size of a small car. It will travel about 4 million miles from the Sun's surface, traveling at 430,000 miles per hour. Outside the spacecraft, temperatures will be 2,500°F. A 4.5 inch carbon-composite shield will protect the four instruments aboard which will study magnetic fields, plasma and energetic particles, and image the solar wind.

NASA will send your name to the Sun on a microchip aboard *PSP*. Go to the website at <http://parkersolarprobe.jhuapl.edu/The-Mission/Name-to-Sun/>. The deadline is April 27th.

LYRID METEOR SHOWER

This April shower doesn't bring May flowers. The only meteor shower in April is the Lyrid meteor shower. A meteor shower is when Earth passes through the path of a comet's trail. That is why they are predictable, unlike a random shooting star.

Meteor showers are named after the constellation from which they appear to radiate. That particular spot is called the **radiant**. The Lyrids radiant is located in the constellation Lyra (the Harp), near the bright blue star Vega, part of the Summer Triangle. Lyra rises around 10:00 p.m., but the best time to look for meteors is when the radiant is high in the sky. This year, the best time is after the moon sets in the early morning hours of April 22nd. Stay up late Saturday night, or get up extremely early on Sunday to see the peak. The Lyrids are unpredictable in how many meteors will be visible per hour. Usually, 10 to 15 meteors per hour are visible with long trains behind them. Sometimes the Lyrids will surge with 100 or more meteors visible per hour!

ANDROMEDA NOT SO BIG

The Andromeda galaxy, our closest neighboring galaxy, was believed to be about three times larger than our Milky Way galaxy. Scientists have recalculated its size, using a more accurate formula. The new formula calculates the speed for a quick-moving body to escape the gravitational pull of its host galaxy. It's called the **escape velocity**. Using this new formula, it appears the two galaxies are about the same size. The amount of dark matter in the Andromeda galaxy was overestimated too, decreasing its weight and gravitational effect.

The Milky Way and Andromeda galaxies will collide in about 4 billion years. It was believed that the Andromeda galaxy would gobble up the Milky Way, now it's believed they will merge together.

APRIL PLANETS

Venus can be seen after sunset in the southwestern sky passing from the constellation Aries (the Ram) into Taurus (the Bull). Venus passes between the Pleiades star cluster and the red star Aldebaran (the Eye) of Taurus. Venus is the “Evening Star” and appears a little higher and longer every night. Venus looks like a very bright white star.

Jupiter can be seen rising in the southeastern sky in the constellation Libra (the Scales). Jupiter rises about 11:00 in early April, and by 9:00 at the end of the month. Jupiter passes low through the southern sky all night. Jupiter reaches opposition in early May and will be visible all night long. Jupiter looks like a bright, yellow-colored star.

Saturn can be seen rising in the southeastern sky just above the “Teapot” in the constellation Sagittarius (the Archer). Saturn rises about 2:30 a.m. and passes low through the southern sky all night. Saturn is getting brighter throughout the month and the rings are tilted in a good viewing position. Saturn looks like a bright, amber-colored star.

Mars can be seen rising in the southeastern sky moving through the constellation Sagittarius (the Archer). Mars rises with Saturn in early April, but moves lower throughout the month. Mars passes Saturn on April 2nd. Mars looks like a small, ruddy-colored star.

Mercury can be seen at the end of April, rising before dawn in the eastern sky in the constellation Pisces (the Fish). Mercury will reach its highest point in the sky on April 29th as it reaches greatest western elongation. Mercury will still be visible for only about a half hour as it only gets 4° above the horizon. Mercury looks like a small white star.

APRIL SUNRISE AND SUNSET (times are for mid-month)

sunrise: 6:10 a.m.
 sunset: 7:30 p.m.
 length of daylight: 13 hours, 20 minutes
 length of darkness: 10 hours, 40 minutes

SKY DATES

April

- 1 - Mercury at inferior conjunction at 1:00
- 2 - Mars passes 1.3° S of Saturn
- 3 - Moon passes 3.9° N of Jupiter
- 6 - **VU Public Talk** at 7:30 to 8:30 p.m.
- **VU Observatory Open House** at 8:30 p.m.
- 7 - Moon passes 1.9° N of Saturn
- Moon passes 3.1° N of Mars
- 8 - Moon at apogee (farthest point from Earth) at 251,123 miles at 12:32 a.m.
- Last quarter moon at 2:18 a.m.
- 14 - Moon passes 3.9° S of Mercury
- 15 - New moon at 7:57 p.m.
- 17 - Saturn at aphelion at 6:00 a.m.
- Saturn is stationary at 9:00 p.m.
- 18 - Moon passes 1.1° N of Aldebaran
- 20 - Moon at perigee (closest point to Earth) at 229,108 miles at 9:41 a.m.
- **VU Observatory Open House** at 8:30 p.m.
- **VU SARA** remote viewing 9:30 p.m.
- 21 - **National Astronomy Day**
- **CAS FREE** Viewing event at Conway Observatory in Lowell 8 – 10 p.m.
- 22 - **Earth Day**
- **Lyrid meteor shower**
- First quarter moon at 4:46 p.m.
- Pluto is stationary at 9:00 p.m.
- 23 - Moon passes 1.9° S of Beehive cluster
- 24 - Venus passes 3.4° S of Pleiades
- Moon passes 1.2° N of Regulus
- 29 - Mercury at greatest western elongation
- **Full moon** called Grass, Seed, Green, Pink, Frog, Egg, or Planter’s Moon at 6:58 p.m.
- 30 - Moon passes 3.8° N of Jupiter

The following sources were used for this issue of Sky News:
jplnewsroom@jpl.nasa.gov, www.esa.int,
<https://www.astropixels.com>,
www.physics.valpo.edu, www.casonline.org,
www.astronomy.com, *EarthSky News*,
www.skyandtelescope.com,
Astronomy, and *Sky and Telescope*.

This edition of the
Sky News
 was written by
 Linda K. Charnetzky